Amendments to Specification

Amend the fifth paragraph on page 11 as follows:

~~**Figure 5** illustrates~~ **Figures 5A-5D** illustrate cross sections of the vanewing airfoils.

Amend the sixth paragraph on page 11 as follows:

~~**Figure 6** shows~~ **Figures 6A and 6B** illustrate the aileron-like extensions at the bottom of the vanewings.

Amend the seventh paragraph on page 11 as follows:

~~**Figure 7** illustrates~~ **Figures 7A and 7B** illustrate the location of the drivetrain with respect to the rest of the jyrodyne.

Amend the tenth paragraph on page 11 as follows:

~~**Figure 10** illustrates~~ **Figures 10A-10D** illustrate the different tapers used for the front, side and rear of the ducted fan shroud.

Amend the eleventh paragraph on page 11 as follows:

~~**Figure 11** shows~~ **Figures 11A-11C show** how the top wing spar for the top wing interacts with the bellmouth of the ducted fan shroud.

Amend the thirteenth paragraph on page 11 as follows:

~~**Figure 13** illustrates~~ **Figures 13A and 13B** illustrate the location of, and details, concerning the rear part of the bottom wing.

Amend the twentieth paragraph on page 11 as follows:

~~**Figure 20 illustrates**~~ **Figures 20A-20E illustrate** the clutch adjustment mechanism to use for clutch wear adjustment.

Amend the twenty first paragraph on page 11 as follows:

~~**Figure 21 illustrates**~~ **Figures 21A-21C illustrate** the collapsing seat arrangement for controlled collapse during high G load crashes.

Amend the twenty second paragraph on page 11 as follows:

~~**Figure 22 compares**~~ **Figures 22A and 22B compare** the number of drivetrain components required for the jyrodyne prototype and a turboprop powered version.

Amend the second paragraph on page 15 as follows:

Referring to ~~**Figure 5**~~ **Figures 5A-5D**, said vanewings of said middle section are three to four in number. In the preferred arrangement, there are two front vanewings and one rear vanewing. The drivetrain truss is enclosed inside said rear vanewing. The said front and rear vanewings when taken as a vertical section view consist of cross sections of airfoil shape, as may be seen in ~~**Figure 5, as Sections A,B and C**~~ **Figures 5A-5D.** The camber of the vanewing airfoils and their angle of attack with respect to the vertical, become more pronounced as the section cut approaches said ducted fan rotor hub.

Amend the third paragraph on page 15 as follows:

Referring to ~~**Figure 6**~~ **Figures 6A and 6B**, these airfoil shaped vanewings also contain ailerons, **14**, attached along their bottom edges in a fashion similar to an aileron on a conventional wing. Only one vanewing is depicted in ~~Figure 6~~ Figures 6A and 6B for illustrative purposes, but all three to four vanewings mount said ailerons. Said vanewing ailerons assist the airfoil cross sections of the said three middle section vanewings to provide a counteracting torque effect to compensate for two sources of torque produced by the ducted fan rotor. The first is the horizontal

component of the ducted fan rotor lift vector produced as the ducted fan rotor spins through the air. The second is the drag produced by the ducted fan rotor as it spins through the air. The sum of the torque produced by two the factors equals the engine torque.

Amend the first paragraph on page 16 as follows:

Referring to ~~**Figure 7**~~ <u>**Figures 7A and 7B**</u>, the internal part of the rear section contains the engines, **16**, tailwheel, **17**, and the central fin, **18,** rudder, **19**, the tractor or pusher prop, **20**, and its associated drivetrain, **21**, used for forward flight. The front of the rear section provides attachment points for the drivetrain truss, **22**. The rear section of the fuselage transitions from a rounded cross section at its front to a tapered circular cross section at the rear of the rear section.

Amend the fifth paragraph on page 16 as follows:

Referring to ~~**Figure 7**~~ <u>**Figures 7A and 7B**</u>, in addition to the unusually low pitch, the lift distribution along the rotor blade is different than a regular propeller blade. The lift distribution is shifted outward along the blade and further away from the hub. This results in more of the rotor lift being produced with the airfoil at a lower angle of attack, thus causing said airfoil lift vector to realize an angle closer to the vertical. When the airfoil lift vector is divided into its horizontal and vertical components, more of the total vector goes with vertical lift, and less with producing a horizontal torque. This horizontal torque must be counteracted, and the counteracting force requires the expenditure of horsepower taken from the total available.

Amend the fifth paragraph on page 17 as follows:

The ducted fan inlet shroud bellmouth is designed to improve the lifting characteristics of the horizontal ducted fan rotor . Referring to ~~**Figure 10**~~ <u>**Figures 10A-10D**</u>, a cross section of the ducted fan inlet shroud bellmouth indicates an airfoil-shaped cross section capable of producing lift. This design provides significantly higher overall lift than a simple unshrouded propeller does for the same diameter and pitch for the same horsepower input. The point of closest approach of the rotor, **6**, is shown. It is similar to the designs of shrouds made by Dr. August Raspet for the series of aircraft he made while at the University of Mississippi, such as the Marvel II.

Amend the sixth paragraph on page 17 as follows:

Referring to ~~**Figure 11**~~ **<u>Figures 11A-11C</u>**, the ducted fan shroud further serves as a spar carry through for the front spar of the top biplane wing, **26**. Said shroud is as thick as the top wing, and provides a smooth transition from the right top wing to the left top wing.

Amend the second paragraph on page 19 as follows:

The outlet of the ducted fan shroud exbedded in the top wing has a different design consideration than the inlet. Referring to ~~Figure 11~~ <u>Figures 11A-11C</u>, a side view of the entire inlet shroud will show an inside profile that resembles the top of a thick airfoil. The bottom end of the shroud is similar to the bottom of an airfoil, and is slightly divergent to provide smooth acceleration of the air outside the shroud. The exiting airmass is accelerated by tapering the rear edges of the shroud outwardly by 7^{o}.

Amend the fourth paragraph on page 19 as follows:

In addition to providing a smooth acceleration of the entering air, the shroud performs several structural functions, some of which have already been described in the earlier section entitled " **Ducted Fan Rotor Structural Supports".** The ducted fan shroud also helps to support the bottom wing, in addition to the top wing as described earlier. The front of the inlet shroud helps transfer some of the wing bending load on the bottom wing through the fuselage in a manner similar to a ring spar encircling a passenger cabin. The load is transferred from the front wing spar of the bottom wing, up through a midrigger to the front part of the ducted fan inlet shroud, as is shown in ~~**Figure 11**~~ **<u>Figures 11A-11C</u>**. It then is transferred across the shroud to the other wing, where it follows a similar path and function.

Amend the first paragraph on page 20 as follows:

Referring to ~~**Figure 13**~~ **Figures 13A and 13B**, midriggers, **29**, are defined as the additional vertical wing support panel structures outboard of the main fuselage, mounted at the edges of the exbedded ducted fan. Said midriggers assist the structural interaction of the main fuselage, the ducted fan shroud and the biplane wings, to further reduce the weight of both the wings and the fuselage. These vertical wing support panel structures are called the midriggers and are similar to conventional biplane N-struts, but are covered with fabric. . Since the jyrodyne has a large hole in its center, a significant stress riser must be compensated for. These midriggers, **29**, help tie together the top surface of the exbedded ducted fan inlet shroud bellmouth, **5**, the bottom and top wings, and the bottom of the fuselage of the jyrodyne where the wings and fuselage meet.

Amend the third paragraph on page 20 as follows:

Again referring to ~~**Figure 13**~~ **Figures 13A and 13B**, said midrigger, **29**, extends upwards and backwards from the front of said bottom wing up to said ducted fan inlet shroud bellmouth, **5**, and also to the front edge of said top wing as a solid panel. Said midrigger , **29**, thus is a vertical solid panel which also extends back along the top of said bottom wing, and then continues rearward, going beyond the rear end of said bottom wing.

Amend the fourth paragraph on page 23 as follows:

Referring to ~~**Figure 13**~~ **Figures 13A and 13B**, the attachment of said bottom wing, **30**, to the fuselage occurs at the bottom of the fuselage, **200**. Said bottom wing contains two main spars, **31, 32**, as in the conventional manner, a front spar at the 5% chord point, and a rear spar at the hinge point for the flaps. Said bottom wing contains flaps whose chord is 25% of the average chord of the wing. The flaps are illustrated at **33**, which extend for 70% of the wingspan. These flaps may also to provide additional capability for forward/rearward travel of said jyrodyne center of lift, due to the large center of gravity shift experienced by the jyrodyne with payload changes in the front compartment. Thus, at heavy payload weights in the passenger compartment, the flaps may be deployed to assist in shifting the jyrodyne center of lift during conventional takeoffs.

Amend the second paragraph on page 34 as follows:

Referring to **Figure 2**, the nosegear, **210,** and referring to ~~**Figure 7**~~ **Figures 7A and 7B**, the tailwheel, **17**, are contained in the fuselage. These two landing gear components are defined as the maingear, and are arranged in a bicycle-type of arrangement.

Amend the third paragraph on page 35 as follows:

The mechanism for the controlled failure of the passenger seats is best illustrated in the attached drawing, called ~~**Figure 21**~~ **Figures 21A-21C**. The collapse of the passenger seats occurs only during straight or nearly straight vertical deceleration of the jyrodyne passenger compartment, unlike the more horizontal deceleration that generally occurs in conventional aircraft. During horizontal deceleration, the seats do not collapse, and the passenger is restrained by a conventional shoulder harness as is typical in aircraft and automobiles. Deceleration for forward conditions is controlled by the collapse of the forward structure of the jyrodyne. G loads are based on a standard, 170 lb. passenger.

Amend the fifth paragraph on page 38 as follows:

A more complete depiction of the operation of the clutches and levers is shown in ~~**Figure 20**~~ **Figures 20A-20E**.

REMARKS

The drawings have been revised in response to the Notice of Draftsperson's patent Drawing Review and the specification has been amended to be consistent with the revised drawings. Each of the examiner's objections are addressed as follows:

1. Overwriting on Fig. 4. This Figure has been revised to remove the overwriting.

2. <u>Left margin not acceptable on Figs. 7, 9, 17, and 23.</u> The margins are now within Office specifications.

3. <u>Views not labeled separately or properly in Figs. 5, 6, 10, 11, 13, 20, 21, and 22.</u> These views have been relabeled.

4. <u>Lines etc. not uniformly thick and well defined, clean, durable and black.</u> The lines are now within Office specifications.

5. <u>Numbers, letters, and references characters must be at least 1/8 inch in height in Figs. 7, 8, 9, 10, 13, 17, 19, 20, 21, and 22.</u> The fonts of reference characters are now within Office specifications.

6. <u>Remove all arrows from lead lines.</u> All arrows removed from lead lines.

7. <u>Remove circle from lead lines in Fig. 3.</u> This objection is respectfully traversed because Applicant can find no such circle in Fig. 3 of any of the Figs.

8. <u>Remove border in Fig. 8.</u> The bold border of the graph has been lightened

The foregoing is submitted as a full and complete response to the Notice Regarding Drawings mailed August 8, 2005 and the issuance of a patent based on this application is respectfully requested. **Because there are numerous amendments and issues addressed in response to this Office Action, Applicant's attorney respectfully requests that the Examiner call the undersigned attorney at (404) 853-8064 for a telephone conference to discuss any further objections or amendments to the drawings or specification.**

Respectfully submitted,

Peter G. Pappas
Reg. No. 33205

SUTHERLAND ASBILL & BRENNAN LLP
999 Peachtree Street, NE
Atlanta, Georgia 30309-3996
Telephone: (404) 853-8000
Facsimile: (404) 853-8806

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